



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,238	05/12/2006	Koichiro Tanaka	0756-7680	1187
31780 7590 07/19/2010 Robinson Intellectual Property Law Office, P.C. 3975 Fair Ridge Drive Suite 20 North Fairfax, VA 22033				
EXAMINER				
PAIK, SANG YEOP				
ART UNIT		PAPER NUMBER		
3742				
MAIL DATE		DELIVERY MODE		
07/19/2010		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/579,238

**Applicant(s)**

TANAKA ET AL.

**Examiner**

SANG Y. PAIK

**Art Unit**

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 7/1/09
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,246,524) or Yamazaki et al (US 6,291,320) in view of Okamoto et al (JP 2003-287704), and Ogawa et al (US 7,753,548) or Sakai et al (US 2003/0063630).

Tanaka or Yamazaki shows the method and apparatus claimed including a laser oscillator emitting a laser beam, a beam homogenizer for homogenizing the laser into a second beam wherein the second beam passes through a first condensing lens and second condensing lens wherein the second lens is in a conjugate relation with a irradiation surface where the second beam enters the irradiation surface. Tanaka or Yamazaki shows the beam homogenizer that is in form of a cylindrical lens array and the condensing lens that are convex cylindrical lens. Tanaka further shows that the laser can be a gas laser such as an Ar laser or a solid-state laser such as a YAG laser wherein the second beam is moved with respect to the irradiation surface, and Tanaka also shows the applications of its laser irradiation method in the video camera, a digital camera, and among other uses. But, Tanaka and Yamazaki do not show that the laser

is a solid-state laser having the spectral width of .1 nm or larger and that the solid-state oscillator includes a crystal of ceramic.

Okamoto shows the method and apparatus claimed including a silicon film irradiate with a laser having a solid-state laser oscillator such as a Nd:YAG laser having a laser beam with a spectral width of 0.1 nm or more into a second beam by a homogenizer such as cylindrical lens array wherein the second beam is condensed with a condensing lens into a third beam that is irradiated on an irradiation surface. The irradiated beam is moved relative to the irradiation surface of the film.

Ogawa or Sakai shows that a solid-state laser using Nd ion or Yb ion doped crystal an excitation medium is well known in the art.

In view of Okamoto, it would have been obvious to one of ordinary skill in the art to adapt Tanaka or Yamazaki with the solid-state laser having the recited spectral width that is well known in the art as an alternative laser oscillator that can provide a suitable alternative laser beam for a uniform laser irradiation; and in view of Ogawa or Sakai, it would have been obvious to adapt Tanaka or Yamazaki with the laser oscillator having a ceramic crystal that is Nd ion or Yb doped crystal as the laser emitting medium which is well known in the art.

With respect to the recite slit, Tanaka shows a slit 205 wherein the beam projecting from the slit can be a third laser beam that passes through a condensing lens and a projection lens, such as the second condensing lens, that is in a conjugate relation with the irradiation surface.

3. Claims 6 and 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka '524 or Yamazaki in view of Okamoto, and Ogawa or Sakai, as applied to claims 1-5 and 7-16 above, and further in view of Tanaka et al (US 6,545,248).

Tanaka '524 or Yamazaki in view of Okamoto, and Ogawa or Sakai, shows the method and apparatus claimed except for the laser beam that is converted by a non-linear optical element.

Tanaka '248 shows that it is well known in the art to provide a non-linear optical element to convert a fundamental into a second harmonic.

In view of Tanaka '248, it would have been obvious to one of ordinary skill in the art to adapt Tanaka '524 or Yamazaki, as modified by Okamoto, and Ogawa or Sakai, with a non-linear optical element to produce a fundamental wavelength to into a harmonic wavelength that further provide a more uniform energy laser beam.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/

Primary Examiner, Art Unit 3742